

Amendment

Serial No.: 10/090,965

Filed: March 4, 2002

For: PRODUCTION OF POLYHYDROXYALKANOATES

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REMARKS

The Office Action mailed April 20, 2004 has been received and carefully reviewed. Claims 14-93 are canceled without prejudice. Accordingly, the pending claims are claims 1-13 and 94, claim 94 having been withdrawn from examination by the Examiner.

Request for Rejoinder of Claim 94

Applicants respectfully request that claim 94 be rejoined and examined together with the invention of Group I (claims 1-13). Claim 94 depends from, and thus fully includes all the limitations of, claim 1, and thus is properly included in Group I. Alternatively, Applicants submit that claim 94 can be examined with the claims of Group I without undue burden to the Examiner.

Applicants submit that claim 94, like claim 1 for reasons described in detail below, is allowable over the art of record. Rejoinder of claim 94, and notification of the allowance of claim 94 as well as claims 1-13, are respectfully requested.

Rejection under 35 U.S.C. §102

The Examiner rejected claims 1, 7-10, 12, 27, 28, 32 and 33 under 35 U.S.C. §102(b) as being anticipated by Leaf (*Dissertation Abstracts International*, 1999; 59(8):4287B-4288B). This rejection is respectfully traversed.

Claims 27, 28, 32 and 33 have been cancelled, rendering the rejection moot as to those claims.

Claim 1 is directed to an *anaerobic* method of producing polyhydroxyalkanoate in a yeast cell as follows:

1. A method for the production of a polyhydroxyalkanoate (PHA) comprising:
providing a transgenic yeast cell comprising a first nucleic acid fragment comprising a heterologous nucleotide sequence encoding a PHA polymerase and at least one second nucleic acid fragment comprising a heterologous nucleotide sequence selected from the group consisting of a heterologous nucleotide sequence encoding an acetoacetyl-CoA reductase and a heterologous nucleotide sequence encoding a β -ketothiolase;

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culturing the transgenic yeast cell under anaerobic conditions to cause the production of PHA; and
isolating the PHA from the yeast cell.

Claims 7-10 and 12 depend from claim 1.

Leaf teaches the production of polyhydroxybutyrate (PHB) using *Saccharomyces cerevisiae* transformed with DNA encoding an *Alcaligenes eutrophus* PHB synthase (polymerase) and reductase. However, Leaf does not teach anaerobic culture conditions (claims 1, 7-10 and 12). Indeed, Leaf teaches away from the invention by stating that anaerobic culturing is "expected to be problematic."

As Leaf does not teach each and every element of the claims 1, 7-10 and 12, Leaf does not anticipate the invention. Reconsideration and withdrawal of the rejection of claims 1, 7-10 and 12 under 35 U.S.C. §102(b) is respectfully requested.

Rejection under 35 U.S.C. §103

The Examiner rejected claims 1-13 and 27-33 under 35 U.S.C. §103(a) as being unpatentable over Madison et al. (*Microbiology and Molecular Biology Review*, 1999; 63(1):21-30) in view of Stratagene Catalog (1999:pg. 23). This rejection is respectfully traversed.

Claims 27-33 have been cancelled without prejudice, rendering the rejection moot as it pertains to those claims.

In order to establish a *prima facie* case of obviousness, the Examiner must establish that there is a motivation to combine the documents (or modify a the teachings of a document) to achieve the claimed invention, with a reasonable expectation of success. Further, the references must teach or suggest every element of the claimed invention. It is respectfully submitted that the Examiner has failed to make the requisite showing of a *prima facie* case of obviousness.

Neither of the cited documents teaches culture conditions in yeast. They, therefore, do not teach or suggest anaerobic culturing of the transgenic yeast cell (claims 1-13), nor do they provide any suggestion that the teachings of Madison et al. can be modified to achieve the claimed invention with a reasonable expectation of success.

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Applicants further point out that Leaf (cited in the rejection under 35 U.S.C. §102(b)), states that because PHB synthesis in yeast was found to represent a net source of reducing equivalents, it is "expected to be problematic in anaerobic culture."

Reconsideration and withdrawal of the rejection of claims 1-13 under 35 U.S.C. §103(a) as being unpatentable over Madison et al. (*Microbiology and Molecular Biology Review*, 1999; 63(1):21-30) in view of Stratagene Catalog (1999:pg. 23), is respectfully requested.

Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives at the below-listed telephone number if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 25th day of June, 2004, at 8:45 a.m. (Central Time).

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